CONTENTS

TRENCH PAVEMENT REPLACEMENT – W201 1
LATERAL TRENCH PAVEMENT REPLACEMENT – W201 2
TRENCH PAVEMENT REPLACEMENT NOTES – W201 3
PIPELINE TRENCH – W202 4
UTILITY SEPARATION – W203 5
WATER MAIN & NON-POTABLE SEPARATION – W204 6
THRUST BLOCK DETAIL – W205 7
THRUST BLOCK DIMENSIONS AND NOTES – W205 8
SHEAR SPOOL/RING AND THRUST BLOCK DETAIL – W206 9
SHEAR SPOOL/RING AND THRUST BLOCK DETAIL – W206 10
VALVE BOX AND VALVE INSTALLATION – W207 11
6” FIRE HYDRANT INSTALLATION – W208 12
6” FIRE HYDRANT INSTALLATION – W208 13
6” – 16” BLOWOFF INSTALLATION (PARKWAY OR SIDEWALK) – W209 14
COMBINATION FIRE HYDRANT/BLOWOFF – W210 15
1” OR 2” AIR VALVE INSTALLATION – W211 16
4” AIR VALVE INSTALLATION – W212 17
1” AND 2” TOP OUTLET – W213 18
1” & 2” SERVICE CONNECTION (NEW MAIN) – W214 19
1” SINGLE SERVICE INSTALLATION – W215 20
1” SINGLE SERVICE INSTALLATION – W215 21
2” SINGLE SERVICE INSTALLATION – W216 22
2” SINGLE SERVICE INSTALLATION – W216 23
4” MULTIPLE SERVICE INSTALLATION – W217 24
MULTI-FAMILY SERVICE INSTALLATION WITH FIRE SERVICE – W128 25
MULTI-FAMILY SERVICE INSTALLATION WITH MANIFOLD FIRE SERVICE – W129 26
DETECTOR CHECK (ABOVE GROUND) – W218 27
WELDED STEEL PIPE REINFORCING DETAIL – W219 28
CUT-TO-FIT & JOINT REPAIR DETAIL – W220 29
CUT-TO-FIT & JOINT REPAIR DETAIL – W220 30
CUT-TO-FIT & JOINT REPAIR DETAIL – W220 31
WELDED JOINTS AND RESTRAINED JOINT THRUST PROTECTION – W221 32
THRUST PROTECTION AND JOINT RESTRAINT – W221 33
CRADLED OR STRAPPED PIPE SUPPORT – W222 34
WATER QUALITY SAMPLE STATION – W223 35
SEWER LATERAL RELOCATION DETAIL – W224 36
EXISTING PAVEMENT TO BE NEAT AND STRAIGHT ALONG BOTH SIDES OF TRENCH, BUTT JOINT (SEAM) EXISTING PAVEMENT; TACK ALL TRENCH EDGES

EXISTING ASPHALT CONCRETE PAVEMENT (A.C.)
EXISTING AGGREGATE BASE (A.B.)

1" THICK FINAL OVERLAY—SEE NOTES 6 AND 8, SHEET 3

COMPLETE REMOVAL AND REPAVE

A.C. BASE PAVEMENT (1st LIFT) — SEE NOTES 2 AND 6, SHEET 3
CLASS II AGGREGATE BASE — SEE NOTES 2 AND 5, SHEET 3

95% RELATIVE COMPACTION

95% RELATIVE COMPACTION NATIVE MATERIAL

TRENCH SIDE WALL

PROPOSED LATERAL

TYPICAL LATERAL TRENCH SECTION

SEE DWA STD DWG W201, SHEET 3 FOR NOTES

APPROVED 3/31/2020
Mark Krueger
RCE. 46700
GENERAL MANAGER, CHIEF ENGINEER

DESERT WATER

LATERAL TRENCH PAVEMENT REPLACEMENT

STANDARD DRAWING W201

SHEET 2 OF 3
1) UNLESS OTHERWISE SPECIFIED IN CONTRACT DOCUMENTS, THIS STANDARD IS TO BE USED WITHIN THE CITY OF PALM SPRINGS AND/OR CITY OF CATHEDRAL CITY BOUNDARIES.

2) ALL ASPHALT CEMENT (A.C.) PAVEMENT AND AGGREGATE BASE (A.B.) SHALL BE COMPACTED TO 95% RELATIVE COMPACTION, MINIMUM.

3) PRIOR TO PIPELINE INSTALLATION, CONTRACTOR SHALL GRIND PIPELINE MAINLINE TRENCH PAVEMENT A MINIMUM OF 4' IN WIDTH. WHERE TRENCH EDGES SLUFF AND PAVEMENT BREAKS AWAY DURING THE COURSE OF CONSTRUCTION, IT SHALL BE SAW CUT PRIOR TO PERMANENT PAVEMENT REPAIR.

4) REMOVE AND REPLACE EXISTING ASPHALT CEMENT (A.C.) PAVEMENT (EXCLUDING AGGREGATE BASE (A.B.)) WHICH IS LESS THAN 3' IN WIDTH BETWEEN TRENCH EDGE AND EDGE OF CURB, GUTTER, OR EDGE OF PAVEMENT.

5) IF EXISTING AGGREGATE BASE IS REMOVED, CONTRACTOR SHALL REPLACE COMPACTED AGGREGATE BASE LAYER IN KIND AND DIMENSION. IF AGGREGATE BASE IS NOT PRE-EXISTING, CLASS II AGGREGATE BASE MATERIAL SHALL BE INSTALLED BASED ON THE LOCAL JURISDICTION'S STREET DESIGNATION.

6) UNLESS OTHERWISE SPECIFIED, THE FINAL OVERLAY SHALL BE PLACED AFTER ALL PIPELINE WORK IS COMPLETED. THE CONTRACTOR SHALL FLUSH PAVE THE 1st LIFT. THE COMPACTED A.C. PAVEMENT SECTION SHALL BE 4" THICK Minimum WHEN EXISTING PAVEMENT IS 4" THICK OR LESS. THE COMPLETED A.C. PAVEMENT SECTION SHALL BE 1" THICKER THAN EXISTING WHEN EXISTING IS GREATER THAN 4" THICK. THE 1st LIFT SHALL BE B PG 70-10 A.C. PAVEMENT. THE FINAL OVERLAY SHALL BE D2 PG 70-10 PLACED 1" THICK. THE FINAL OVERLAY SHALL BE INSTALLED USING A BARBER GREENE, OR APPROVED EQUAL. IF APPROVED BY THE AGENCY, CONTRACTOR MAY, IN ONE OPERETION, PLACE THE 1st LIFT AND FINAL OVERLAY.

7) THE FINAL OVERLAY FOR THE MAINLINE TRENCH SHALL EXTEND IN WIDTH 4" MINIMUM BEYOND THE TRENCH EDGES. IN NO CASE SHALL THE FINAL OVERLAY WIDTH FOR THE MAINLINE TRENCH BE LESS THAN 6' IN WIDTH.

8) A.C. PAVEMENT SHALL BE 1/4 INCH ABOVE LIP OF GUTTER IN ACCORDANCE WITH CITY AND AGENCY STANDARDS.

9) AFTER FINAL PAVING HAS BEEN COMPLETED, CONTRACTOR SHALL APPLY TACK IN NEAT, STRAIGHT LINES ALONG ALL MAINLINE AND LATERAL TRENCH EDGES.
BACKFILL CRITERIA

- PIPE ZONE BACKFILL: 1" maximum size in accordance with basic pipeline specifications, compacted to 95% relative compaction, minimum.
- TRENCH ZONE BACKFILL: 8" maximum size, compaction lift shall not exceed 1" in depth in accordance with basic pipeline specifications, compacted to 95% relative compaction, minimum. Top 12" compacted to 95% relative compaction.
- PAVEMENT ZONE: SEE STANDARD DRAWING W201.

NOTES

1) PIPELINE COVER SHALL BE 36" minimum for pipe OD 8" or less unless specified otherwise. Pipe OD 12" or larger may be specified at a greater depth by Desert Water Agency Engineering.

2) TRENCH SIDES SHALL BE SLOTTED OR SHORED IN ACCORDANCE WITH CAL OSHA CONSTRUCTION SAFETY ORDERS FOR TRENCH DEPTHS 5' AND GREATER.

3) ALL EXISTING PAVEMENT SHALL BE SAWCUT PRIOR TO TRENCHING, AND WHERE TRENCH SIDES SLUFF AND PAVEMENT BREAKS AWAY, IT SHALL BE SAWCUT PRIOR TO PERMANENT PAVEMENT REPAIR.

4) WHENEVER EXISTING CURB ARE BEING USED FOR GRADE CONTROL, PIPELINES SHALL BE LAID ON PROJECTED CONTINUOUS SLOPES THROUGH LOCALIZED HILLS, HUMPS, AND MOUNDS AS AT STREET INTERSECTIONS AND CHANNEL BERMS. PIPELINE GRADES SHALL BE SELECTED TO MAINTAIN MINIMUM COVER WITH CONTINUOUS PIPELINE SLOPE. PIPELINE TRENCH DEPTHS SHALL BE INCREASED TO ACCOMPLISH SAME AND PIPELINE COVER SHALL BE INCREASED ACCORDINGLY.

5) REFER TO STANDARD DRAWING W203 AND STANDARD DRAWING W204 FOR UTILITY SEPARATION REQUIREMENTS.

6) WHERE BOTTOM OF EXCAVATION IS IN ROCK OR UNSUITABLE SOIL WHICH CANNOT BE EXCAVATED TO PROVIDE UNIFORM BEDDING FOR THE PIPE, TRENCH SHALL BE OVER EXCAVATED 8" MINIMUM AND REFILLED WITH SELECT EXCAVATED MATERIAL OR IMPORTED BACKFILL MATERIAL COMPACTED TO 95% MINIMUM RELATIVE COMPACTION.

APPROVED 3/31/2020

Mark A. Houghton
GENERAL MANAGER, CHIEF ENGINEER

DESERT WATER
PIPELINE TRENCH

STANDARD DRAWING
W202
SHEET 1 OF 1
CROSSING CONDITION

FINISHED GROUND SURFACE

UTILITY

PROHIBITED ZONE

WATERMAIN

3' MIN 3' MIN

12" MIN

2" MIN

PARALLEL CONDITION

FINISHED GROUND SURFACE

UTILITY

CONCRETE ENCASEMENTS OR VAULTS

WATERMAIN

6' MIN

6' MIN

12" MIN

NOTES

1) CHANGES MAY BE PERMITTED BY THE AGENCY IN CASES OF CONFLICTING FACILITIES.

2) FOR SEWER/NON-POTABLE SEPARATION, REFER TO STD DWG W204 FOR WATER MAIN AND NON-POTABLE WATER SEPARATION.

3) ALL MAINLINE OR SIDE OUTLET VALVES SHALL BE LOCATED THREE (3) FEET MINIMUM FROM ANY CURB FACE.

DESERT WATER

STANDARD DRAWING

UTILITY SEPARATION

W203

SHEET 1 OF 1
EXISTING NON-POTABLE PIPE CROSSING CONDITION

CROSSINGS LESS THAN 45° HORIZONTAL ANGLE SHALL BE INSTALLED PER PARALLEL CONDITIONS. ALL MAINS TO BE INSTALLED PER DWA BASIC PIPELINE SPECIFICATION FOR DUCTILE IRON PIPE WITH BITUMINOUS COATING.

ZONE "A" - NO CONNECTION JOINTS FOR 10' ON EITHER SIDE OF NON-POTABLE PIPE.
ZONE "B" - NO CONNECTION JOINTS FOR 8' ON EITHER SIDE OF THE NON-POTABLE PIPE. (AS PERMITTED BY AGENCY)
ZONE "C" - NO SPECIAL CONDITIONS REQUIRED.

EXISTING NON-POTABLE PIPE PARALLEL CONDITION

CROSSINGS LESS THAN 45° HORIZONTAL ANGLE SHALL BE INSTALLED PER PARALLEL CONDITIONS. ALL MAINS TO BE INSTALLED PER DWA BASIC PIPELINE SPECIFICATION FOR DUCTILE IRON PIPE WITH BITUMINOUS COATING.

ZONE "A" - NO WATER MAINS SHALL BE CONSTRUCTED WITHOUT SPECIAL PERMISSION FROM STATE DEPARTMENT OF HEALTH SERVICES.
ZONE "B" - NO SPECIAL CONDITIONS REQUIRED.

NOTE: NON-POTABLE - CONVEYING UNTREATED, PRIMARY OR SECONDARY TREATED SEWAGE, DISINFECTED SECONDARY OR TERTIARY RECYCLED WATER, HAZARDOUS FLUIDS & STORM DRAINAGE, ETC.
NOTE: RESTRAINED JOINTS REQUIRED FOR DUCTILE IRON WATERMAINS. SEE STD DWG W221 FOR DISTANCES.
### TEE AND END

**PIPE SIZE (INCHES)**
- 6
- 8
- 10
- 12
- 14
- 16
- 18
- 20
- 24
- 27
- 30
- 33
- 36

**"W" (FEET)**
- 2.0
- 2.5
- 3.0
- 3.3
- 3.8
- 4.2
- 4.7
- 5.0
- 5.3
- 5.5
- 5.8
- 6.0
- 6.3

**"H" (FEET)**
- 2.0
- 2.5
- 3.0
- 4.0
- 4.5
- 5.0
- 5.5
- 6.0
- 7.8
- 9.0
- 10.0
- 11.3
- 12.3

**"D" (FEET)**
- 1.0
- 1.0
- 1.0
- 1.3
- 1.5
- 1.5
- 1.8
- 2.0
- 2.0
- 2.0
- 2.0
- 2.0
- 2.0

### HORIZONTAL BEND

**PIPE SIZE (INCHES)**
- 6
- 8
- 10
- 12
- 14
- 16 & 18
- 20 & 24
- 27 & 30
- 33 & 36

**H.P.I. (DEG)**
- 5-12
- 13-38
- 39-63
- 64-90
- 64-90
- 64-90
- 64-90
- 64-90
- 64-90
- 64-90

**H (FEET)**
- 1.0
- 1.5
- 2.0
- 2.0
- 2.0
- 2.0
- 2.0
- 2.0
- 2.0
- 2.0

**W (FEET)**
- 1.0
- 1.5
- 2.0
- 3.0
- 4.0
- 4.2

**NOTES**
1. USE OF THRUST BLOCKS INSTEAD OF RESTRAINED JOINTS REQUIRES AGENCY APPROVAL AND WILL BE EVALUATED ON A CASE BY CASE BASIS.
2. CONCRETE SHALL BE CLASS C (2,000 PSI MIN.) IN ACCORDANCE WITH BASIC CONCRETE SPECIFICATIONS. THRUST BLOCK DIMENSIONS SHOWN ARE MINIMUM.
3. THRUST BLOCKS SHALL BE FORMED WITH TRIMMED EARTH, SAND BAGS, OR LUMBER TO ACHIEVE REQUIRED CONFIGURATION. ALL LUMBER SHALL BE REMOVED PRIOR TO BACKFILLING.
4. THRUST BLOCKS SHALL BEAR AGAINST UNDISTURBED EARTH OR REPLACED EARTH HAVING 95% RELATIVE COMPACTION, MINIMUM.
5. BACKFILL AROUND AND OVER BLOCKS SHALL BE COMPACTED TO 95% RELATIVE COMPACTION, MINIMUM.
6. COMPACTED EARTH SHALL EXTEND TO DEPTH AND WIDTH (W) OF BLOCK AND TO DISTANCE W/2 BEFORE AND PAST BLOCK. THRUST BLOCK SHALL NOT EXCEED 10% OF BLOCK DIMENSIONS.

---

**DESERT WATER**

**STANDARD DRAWING**

**W205**

**THRUSS BLOCK DIMENSIONS AND NOTES**

---

**APPROVED**

**RCE. 46700**

---

**GENERAL MANAGER, CHIEF ENGINEER**

---

**REVISION BY DATE**

---

**SHEET 2 OF 2**
### TYPICAL SHEAR RING DETAIL

**NO OTHER FITTINGS OR APPURTENANCES UNLESS SPECIFIED OTHERWISE**

**SHEAR SPOOL - STEEL PIPE**

<table>
<thead>
<tr>
<th>ITEM</th>
<th>QTY</th>
<th>DESCRIPTION</th>
<th>APPROVED MATERIALS LIST</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1</td>
<td>CEMENT MORTAR LINED AND CEMENT MORTAR COATED WELDED STEEL PIPE, UNLESS OTHERWISE SPECIFIED.</td>
<td>A-01/D-01</td>
</tr>
<tr>
<td>2</td>
<td>2</td>
<td>FLANGE</td>
<td>C-01</td>
</tr>
<tr>
<td>3</td>
<td>1</td>
<td>STEEL SHEAR RING. SEE DETAIL ABOVE HEREON.</td>
<td>N/A</td>
</tr>
<tr>
<td>4</td>
<td>1</td>
<td>SHEAR RING THRUST BLOCK. SEE SHEET 2.</td>
<td>N/A</td>
</tr>
</tbody>
</table>
### SHEAR SPOOL/RING AND THRUST BLOCK DETAIL

<table>
<thead>
<tr>
<th>PIPE SIZE (INCHES)</th>
<th>&quot;H&quot; (FEET) MIN.</th>
<th>&quot;W&quot; (FEET) MIN.</th>
<th>&quot;T&quot; (FEET) MIN.</th>
<th>&quot;T&quot; (FEET) MAX.</th>
<th>SHEAR RING THICKNESS &quot;R&quot; (INCHES)</th>
</tr>
</thead>
<tbody>
<tr>
<td>8 OR LESS</td>
<td>2.0</td>
<td>4.5</td>
<td>1.0</td>
<td>1.5</td>
<td>3/4</td>
</tr>
<tr>
<td>10</td>
<td>2.5</td>
<td>4.5</td>
<td>1.0</td>
<td>1.5</td>
<td>3/4</td>
</tr>
<tr>
<td>12</td>
<td>3.0</td>
<td>5.0</td>
<td>1.0</td>
<td>1.5</td>
<td>3/4</td>
</tr>
<tr>
<td>14</td>
<td>3.5</td>
<td>5.2</td>
<td>1.3</td>
<td>1.8</td>
<td>3/4</td>
</tr>
<tr>
<td>16</td>
<td>3.8</td>
<td>6.0</td>
<td>1.3</td>
<td>1.8</td>
<td>3/4</td>
</tr>
<tr>
<td>18</td>
<td>4.8</td>
<td>6.0</td>
<td>1.5</td>
<td>2.0</td>
<td>3/4</td>
</tr>
<tr>
<td>20</td>
<td>4.8</td>
<td>7.0</td>
<td>1.5</td>
<td>2.0</td>
<td>3/4</td>
</tr>
<tr>
<td>24</td>
<td>4.8</td>
<td>8.0</td>
<td>1.8</td>
<td>2.2</td>
<td>1</td>
</tr>
<tr>
<td>27</td>
<td>5.6</td>
<td>9.0</td>
<td>1.8</td>
<td>2.2</td>
<td>1</td>
</tr>
<tr>
<td>30</td>
<td>6.0</td>
<td>11.0</td>
<td>2.0</td>
<td>2.5</td>
<td>1</td>
</tr>
<tr>
<td>36</td>
<td>7.0</td>
<td>12.0</td>
<td>2.0</td>
<td>2.5</td>
<td>1</td>
</tr>
</tbody>
</table>

**NOTES**

1) All steel pipe except flanges or adapters shall be fully cement mortar coated or enameled.
2) Concrete shall be Class C (2,000 psi min.) in accordance with basic concrete specifications. Block dimensions shown are minimum.
3) Thrust blocks shall be formed with trimmed earth, sand bags, or lumber to achieve required configuration. All materials used to form shall be removed prior to backfilling.
4) Thrust blocks shall bear against undisturbed earth or replaced earth having 95% relative compaction, minimum.
5) Backfill around and over thrust blocks shall be compacted to 95% relative compaction, minimum.
6) Compacted earth shall extend to depth and width (W) of block and to distance W/2 before and past thrust block.

**APPROVED 3/3/2020 DATE**

**DISTRICT ENGINEER**

RCE. 46700

**DESERT WATER**

**STANDARD DRAWING**

W206

**SHEET 2 OF 2**
NOTES

1) EXTENSION ROD REQUIRED WHENEVER TOP OF VALVE IS MORE THAN 36" BELOW FINISHED IMPROVED/UNIMPROVED GROUND SURFACE. WHEN EXTENSION ROD IS REQUIRED, OPERATING NUT SHALL BE 12" + 2" BELOW TOP OF TRAFFIC BOX. REQUIRED LENGTH FOR EXTENSION ROD SHALL BE DETERMINED BY "FIEL" MEASUREMENT. EXTENSION ROD SHALL BE SECURED TO VALVE OPERATING NUT BY WELDING A BEAD ON THE INSIDE OF THREE WALLS OF THE EXTENSION NUT CAP.

DESERT WATER
VALVE BOX AND VALVE INSTALLATION
STANDARD DRAWING
W207

REVIEWED 3/31/2020
RCE. 46700

GENERAL MANAGER
CHIEF ENGINEER

REVISION BY DATE
6" FIRE HYDRANT INSTALLATION

DESSERT WATER

STANDARD DRAWING

W208

SHEET 1 OF 2
<table>
<thead>
<tr>
<th>ITEM</th>
<th>QTY</th>
<th>DESCRIPTION</th>
<th>APPROVED MATERIALS LIST</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1</td>
<td>6&quot; FLANGED DUCTILE IRON TEE ON DUCTILE IRON WATERMAIN OR 6&quot; DIAMETER FLANGED SIDE OUTLET ON WELDED STEEL WATERMAIN.</td>
<td>N/A</td>
</tr>
<tr>
<td>2</td>
<td>1</td>
<td>6&quot; DIAMETER FLANGED GATE VALVE PER STANDARD DRAWING W207.</td>
<td>SEE DWG W207</td>
</tr>
<tr>
<td>3</td>
<td>1</td>
<td>VALVE BOX INSTALLATION PER STANDARD DRAWING W207.</td>
<td>SEE DWG W207</td>
</tr>
<tr>
<td>4</td>
<td>3</td>
<td>6&quot; DUCTILE IRON PUSH-ON X FLANGE ADAPTER.</td>
<td>H-02</td>
</tr>
<tr>
<td>5</td>
<td></td>
<td>VARIETIES: 6&quot; DIAMETER DUCTILE IRON PIPE AND FITTINGS WITH RESTRAINED JOINTS.</td>
<td>A-03/D-03/H-04</td>
</tr>
<tr>
<td>6</td>
<td>1</td>
<td>6&quot; DIAMETER STANDARD WEIGHT CEMENT MORTAR LINED AND CEMENT MORTAR COATED WELDED STEEL PIPE WITH SMOOTH 90° ELBOW.</td>
<td>A-02/D-02</td>
</tr>
<tr>
<td>7</td>
<td>1</td>
<td>6&quot; 6 BOLT FLANGE (DRILLED TO MATCH 6 BOLT HYDRANT FLANGE). FLANGE SHALL BE SHIPPED LOOSE.</td>
<td>C-01</td>
</tr>
<tr>
<td>8</td>
<td>1</td>
<td>RESIDENTIAL: WET BARREL FIRE HYDRANT WITH 6&quot; 6 BOLT FLANGED INLET, ONE 4&quot; PUMPER OUTLET AND ONE 2-1/2&quot; HOSE OUTLETS.</td>
<td>F-01</td>
</tr>
<tr>
<td>9</td>
<td>1</td>
<td>COMMERCIAL: WET BARREL FIRE HYDRANT WITH 6&quot; 6 BOLT FLANGED INLET, ONE 4&quot; PUMPER OUTLET AND TWO 2-1/2&quot; HOSE OUTLETS.</td>
<td>F-02</td>
</tr>
<tr>
<td>10</td>
<td>6</td>
<td>5/8&quot; DIAMETER BREAKAWAY BOLTS.</td>
<td>H-06</td>
</tr>
<tr>
<td>11</td>
<td>1</td>
<td>THRUST BLOCK PER STANDARD DRAWING W205 (NEW HYDRANT ON EXISTING MAIN).</td>
<td>SEE DWG W205</td>
</tr>
<tr>
<td></td>
<td></td>
<td>FIRE HYDRANT AND FLANGE GASKETS SHALL BE AS SPECIFIED.</td>
<td>H-04/H-05</td>
</tr>
<tr>
<td></td>
<td></td>
<td>NUTS AND BOLTS. BOLT THREADS SHALL BE LUBRICATED WITH AN APPROVED ANTI-SIEZE COMPOUND. ALL BURIED EXPOSED STEEL SHALL BE FIELD COATED WITH AN APPROVED BITUMASTIC.</td>
<td>H-06/H-1B</td>
</tr>
</tbody>
</table>

NOTES

1) FIRE HYDRANT LOCATIONS NOTED HEREON ARE GENERAL. SPECIFIC LOCATIONS SHALL CONFORM TO THE REQUIREMENTS OF AGENCY HAVING FIRE PROTECTION RESPONSIBILITY, NAMINGLY THE CITY OF PALM SPRINGS, THE CITY OF CATHEDRAL CITY, THE STATE DIVISION OF FORESTRY, COUNTY FIRE DEPARTMENT OR FIRE PROTECTION DISTRICT WITHIN THE COUNTY. SAID AGENCIES SHALL APPROVE ALL FIRE HYDRANT LOCATIONS.

2) ALL ABOVE-GROUND EXPOSED METAL SURFACES SHALL BE PAINTED IN ACCORDANCE WITH AGENCY APPROVED PAINT SYSTEMS.

3) RISER SHALL BE CEMENT MORTAR COATED WITH COATING TAPERED TO A 6" FLANGE TO ALLOW FOR BREAKAWAY BOLTS.

4) FOR NEW DEVELOPMENTS, FIRE HYDRANT SHALL BE INSTALLED BEHIND SIDEWALK.

5) FIRE HYDRANTS ON NEW DUCTILE IRON WATERMAINS REQUIRE 20 FEET OF RESTRAINED JOINTS ON BOTH SIDES OF TEE IN LIEU OF THRUST BLOCK.

DESERT WATER

6" FIRE HYDRANT INSTALLATION

STANDARD DRAWING

W208

REVIEWED: 3/31/2020

MARK KASENE
GENERAL MANAGER, CHIEF ENGINEER

RCE. 46700

REVISION BY DATE

SHEET 2 OF 2
1" CRUSHED ROCK BASE
4" SQUARE, 6" THICK Place AGAINST UNDISTURBED EARTH OR 95% MN. COMPACTED BACKFILL
OR PER MANUFACTURER SPECIFICATIONS.

CLASS A (4,000 PSI MIN.) CONCRETE

EXISTING SIDEWALK OR GROUND

OFFSET AS SPECIFIED
(9°-5" MINIMUM)

DEXTER IRON WATERMAIN

9°-5"

PLUMB

PLACE PUMPER WELL

CLASS C (2,000 PSI MIN.) CONCRETE
THRUST BLOCK, "0" FEET CUBE

PLACE AGAINST UNDISTURBED EARTH OR 95%
COMPACTED BACKFILL

WELDED STEEL WATERMAIN

LEVEL

12"± 3"

DUCTILE IRON WATERMAIN

ITEM QTY DESCRIPTION

1 1 FLANGED DUCTILE IRON TEE WITH FLANGED DUCTILE IRON 45° ON DUCTILE IRON WATERMAIN OR FLANGED TANGENTIAL SIDE OUTLET ON WELDED STEEL WATERMAIN.

2 1 FLANGED VALVE PER STANDARD DRAWING W207.

3 1 VALVE BOX INSTALLATION PER STANDARD DRAWING W207.

4 2 DUCTILE IRON PUSH-ON X FLANGE ADAPTER.

5 VARIES DUCTILE IRON PIPE AND FITTINGS WITH RESTRANED JOINTS.

6 VARIES CEMENT MORTAR LINED AND CEMENT MORTAR COATED 10 CAGE WELDED STEEL PUMPER WELL CENTER IN VAULT.

7 1 AWWA CLASS E FLANGE.

8 1 AWWA CLASS E BLIND FLANGE.

9 1 BLOWOFF VAULT WITH TRAFFIC RATED LID. MINIMUM INSIDE DIMENSION 46" X 26" X 39" (L X W X H).

10 1 2' CUT-TO-FIT, SHIP FLANGE LOOSE.

BOLTS AND NUTS, BOLT THREADS SHALL BE LUBRICATED WITH AN APPROVED ANTI-SIEZE COMPOUND. ALL EXPOSED STEEL SHALL BE FIELD COATED WITH AN APPROVED BITUMINIC.

STANDARD DRAWING

W209

DESSERT WATER

6"-16" BLOWOFF INSTALLATION
(PARKWAY OR SIDEWALK)

RCE. 46700

REVISION 31/3/20

GENERAL MANAGER
CHIEF ENGINEER
1) FIRE HYDRANT/BLOWOFF TO BE INSTALLED ON MAINS 8"-20" IN DIAMETER AND ONLY WHERE APPROVED BY AGENCY. FOR MAINS LARGER THAN 20" DIAMETERS, OR MAINS GREATER THAN 8 FEET IN DEPTH, SHALL HAVE BLOWOFF ASSEMBLIES PER STD DWG W209.

2) FOR HYDRANT LOCATION WITH RESPECT TO THE BACK OF THE CURB OR THE SIDEWALK WIDTH AND HYDRANT OUTLET ORIENTATION SEE STANDARD DRAWING W208.

3) ALL ABOVE-GROUND EXPOSED METAL SURFACES SHALL BE PAINTED IN ACCORDANCE WITH AGENCY APPROVED PAINT SYSTEMS.

4) SPOOL SHALL BE CEMENT MORTAR COATED WITH COATING TAPERED TO A 6" FLANGE TO ALLOW FOR BREAKAWAY BOLTS.
EDGE OF IMPROVED OR UNIMPROVED SURFACE

NO CURB AND GUTTER

NO SIDEWALK

SIDEWALK WIDTH 8' OR LESS

SIDEWALK WIDTH GREATER THAN 8'

<table>
<thead>
<tr>
<th>ITEM</th>
<th>QTY</th>
<th>DESCRIPTION</th>
<th>APPROVED MATERIALS LIST</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1</td>
<td>2&quot; TOP OUTLET PER STANDARD DRAWING W213</td>
<td>SEE Dwg W213</td>
</tr>
<tr>
<td>2</td>
<td>1</td>
<td>2&quot; BRASS 90° STREET ELL, TAPE WRAPPED</td>
<td>A-05</td>
</tr>
<tr>
<td>3</td>
<td>1</td>
<td>2&quot;x12&quot; BRASS NIPPLE, TAPE WRAPPED</td>
<td>A-06</td>
</tr>
<tr>
<td>4</td>
<td>2</td>
<td>2&quot;x2&quot; DUCTILE IRON COMPANION FLANGE</td>
<td>C-03</td>
</tr>
<tr>
<td>5</td>
<td>1</td>
<td>2&quot; FLANGED GATE VALVE PER STANDARD DRAWING W207</td>
<td>SEE Dwg W207</td>
</tr>
<tr>
<td>6</td>
<td>1</td>
<td>2&quot; STRAIGHT COUPLING, M.I.P.xCOMP.</td>
<td>D-05</td>
</tr>
<tr>
<td>7</td>
<td>Varies</td>
<td>2&quot; TYPE &quot;K&quot; RIGID COPPER PIPE</td>
<td>A-05</td>
</tr>
<tr>
<td>8</td>
<td>1</td>
<td>2&quot; QUARTER BEND COUPLING, F.I.P.xCOMP.</td>
<td>D-05</td>
</tr>
<tr>
<td>9</td>
<td>1</td>
<td>2&quot; BRASS RISER (CUT AND THREADED TO FIT)</td>
<td>A-06</td>
</tr>
<tr>
<td>10</td>
<td>1</td>
<td>2&quot; BRASS BALL VALVE w/TEST COCK (ADD 2&quot;x1&quot; BRASS BUSHING FOR 1&quot; AIR VALVE)</td>
<td>B-17/(D-05)</td>
</tr>
<tr>
<td>11</td>
<td>1</td>
<td>1&quot; OR 2&quot; COMBINATION AIR VALVE (SEE TABLE HEREOF)</td>
<td>B-11/B-12</td>
</tr>
<tr>
<td>12</td>
<td>1</td>
<td>AIR VALVE COVER</td>
<td>H-16</td>
</tr>
<tr>
<td>13</td>
<td>3</td>
<td>3/8&quot;-3/4&quot; CONCRETE WEDGE ANCHOR BOLTS (3 EA. AT 120' APART)</td>
<td>N/A</td>
</tr>
<tr>
<td>14</td>
<td>1</td>
<td>VALVE BOX PER STANDARD DRAWING W207</td>
<td>SEE Dwg W207</td>
</tr>
<tr>
<td>15</td>
<td>8</td>
<td>NUTS AND BOLTS. BOLT THREADS SHALL BE LUBRICATED WITH AN APPROVED ANTI-SEIZE COMPOUND. ALL EXPOSED STEEL SHALL BE FIELD COATED WITH AN APPROVED BITUMINIC</td>
<td>H-06/H-18</td>
</tr>
</tbody>
</table>

DESSERT WATER

1" OR 2" AIR VALVE INSTALLATION

STANDARD DRAWING W211

RCE. 46700

3/31/2020

GENERAL MANAGER, CHIEF ENGINEER

REVISION BY DATE
NOTE: 4" AIR VALVE REQUIRED ON WATER MAINS 18" AND GREATER IN DIAMETER.

48" SQ. CONCRETE PAD; CLASS A (4,000 PSI MIN.), 6" THICK OR MATCH SIDEWALK THICKNESS.

MAIN LINE (TYP.)

BACK OF CURB

48" SQ. (TYP.)

NO SIDEWALK

SIDEWALK WIDTH 8' OR LESS

SIDEWALK WIDTH GREATER THAN 8'

NO CURB AND GUTTER

<table>
<thead>
<tr>
<th>ITEM</th>
<th>QTY</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1</td>
<td>4&quot; FLANGED TEE</td>
</tr>
<tr>
<td>2</td>
<td>1</td>
<td>4&quot; FLANGED 90'</td>
</tr>
<tr>
<td>3</td>
<td>1</td>
<td>4&quot; FLANGED GATE VALVE PER STANDARD DRAWING W207</td>
</tr>
<tr>
<td>4</td>
<td>2</td>
<td>4&quot; PUSH-ON X FLANGE ADAPTER (DUCTILE IRON LATERAL) / 4&quot; FLANGE (STEEL LATERAL)</td>
</tr>
<tr>
<td>5</td>
<td>1</td>
<td>4&quot; DUCTILE IRON PIPE AND FITTINGS WITH RESTRAINED JOINTS OR CML/CMC 10 GA. STEEL PIPE</td>
</tr>
<tr>
<td>6</td>
<td>1</td>
<td>4&quot; DIAMETER STANDARD WEIGHT CEMENT MORTAR LINED AND CEMENT MORTAR COATED WELDED STEEL PIPE WITH SMOOTH 90° ELBOW (FLANGED END)</td>
</tr>
<tr>
<td>7</td>
<td>1</td>
<td>4&quot; COMBINATION AIR VALVE</td>
</tr>
<tr>
<td>8</td>
<td>1</td>
<td>AIR VALVE COVER</td>
</tr>
<tr>
<td>9</td>
<td>3</td>
<td>3/8&quot;x3&quot; CONCRETE WEDGE ANCHOR BOLTS (3 EA. AT 120° APART)</td>
</tr>
<tr>
<td>10</td>
<td>1</td>
<td>VALVE BOX PER STANDARD DRAWING W207</td>
</tr>
<tr>
<td>11</td>
<td>8</td>
<td>BREAK AWAY BOLTS/NUTS</td>
</tr>
<tr>
<td>12</td>
<td>5</td>
<td>FLANGE GASKET</td>
</tr>
<tr>
<td>13</td>
<td>32</td>
<td>NUTS AND BOLTS. BOLT THREADS SHALL BE LUBRICATED WITH AN APPROVED ANTI-SEIZE COMPOUND. ALL EXPOSED STEEL SHALL BE FIELD COATED WITH AN APPROVED BITUMASTIC</td>
</tr>
</tbody>
</table>

APPROVED MATERIALS LIST

D-03

SEE DWG W207

H-02/C-01

A-03/D-03/H-04

A-01/D-01

A-02/D-02

B-13

H-16

N/A

SEE DWG W207

H-06

H-04

H-06

DESERT WATER

4" AIR VALVE INSTALLATION

STANDARD DRAWING

W212

SHEET 1 OF 1

3/31/2020

RCE. 46700

GENERAL MANAGER,
CHIEF ENGINEER
Cement Mortar Coating

Welded Steel Watermain

Ductile Iron Watermain

- Double strap (IPT) bronze service clamp or direct tapped and taper threaded corp stop for 1" outlet, all size mains.
- Double strap (IPT) bronze service clamp for 2" outlet on mains 12" and smaller.
- Double strap (IPT) bronze service clamp or direct tapped and taper threaded corp stop for 2" outlet on mains larger than 12".

<table>
<thead>
<tr>
<th>ITEM</th>
<th>QTY</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1</td>
<td>Standard steel coupling welded to steel watermain and cement mortar coated, or tapped and taper threaded ductile iron pipe.</td>
</tr>
<tr>
<td>2</td>
<td>1</td>
<td>1&quot; or 2&quot; standard brass square head plug.</td>
</tr>
<tr>
<td>3</td>
<td>Varies</td>
<td>1&quot; or 2&quot; standard weight black pipe threaded coupling, welded to top of welded steel watermain and covered with pipe coating.</td>
</tr>
<tr>
<td>4</td>
<td>1</td>
<td>Double strap (IPT) bronze service clamp.</td>
</tr>
</tbody>
</table>

APPROVED
3/31/2020
Mark Kneu
General Manager, Chief Engineer

DESERt WATER
STANDARD DRAWING
W213
1" AND 2" TOP OUTLET
1 OF 1 SHEET

NOTES

1) Top outlet shall be used by contractor for testing and disinfection or as otherwise specified by agency. Contractor shall provide curb stop or corporation stop for testing and disinfection and contractor shall replace said stop with an approved plug after successfully testing and disinfecting pipeline.

2) Steel watermain and threaded coupling shall be cement mortar coated.
WELDED STEEL WATERMAIN
- WELD ON BLACK STEEL COUPLING FOR 1" AND 2" SERVICES. ALL SIZE MAINS.

DUCTILE IRON WATERMAIN
- DOUBLE STRAP (I.P.T.) BRONZE SERVICE CLAMP OR DIRECT TAPPED AND TAPER THREADED CORP STOP FOR 1" OUTLET. ALL SIZE MAINS.
- DOUBLE STRAP (I.P.T.) BRONZE SERVICE CLAMP FOR 2" OUTLET ON MAINS 12" AND SMALLER
- DOUBLE STRAP (I.P.T.) BRONZE SERVICE CLAMP OR DIRECT TAPPED AND TAPER THREADED CORP STOP FOR 2" OUTLET ON MAINS LARGER THAN 12".

<table>
<thead>
<tr>
<th>ITEM</th>
<th>QTY</th>
<th>DESCRIPTION</th>
<th>APPROVED MATERIALS LIST</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1</td>
<td>STANDARD STEEL COUPLING WELDED TO STEEL WATERMAIN AND CEMENT MORTAR COATED, OR TAPPED AND TAPER THREADED DUCTILE IRON PIPE.</td>
<td>D-02/A-03</td>
</tr>
<tr>
<td>2</td>
<td>1</td>
<td>CORPORATION STOP IRON PIPE THREAD INLET AND COMPRESSION OUTLET FOR STEEL WATERMAINS AND DUCTILE IRON PIPE WITH SERVICE CLAMP, CORPORATION STOP (AWWA TAPER) THREAD INLET AND COPPER COMPRESSION OUTLET FOR TAPPED DUCTILE IRON PIPE. ALL THREADED JOINTS SHALL INCLUDE JOINT COMPOUND.</td>
<td>B-03/B-04, H-11</td>
</tr>
<tr>
<td>3</td>
<td>VARIATES</td>
<td>TYPE &quot;K&quot; SOFT COPPER TUBING.</td>
<td>A-05</td>
</tr>
<tr>
<td>4</td>
<td>1</td>
<td>DOUBLE STRAP (I.P.T.) BRONZE SERVICE CLAMP.</td>
<td>H-01</td>
</tr>
</tbody>
</table>

NOTES
1) STANDARD STEEL COUPLING SHALL BE IRON PIPE THREADED. DUCTILE IRON PIPE SHALL BE TAPPED AND THREADED FOR CORPORATION STOP (AWWA TAPER) PIPE THREAD OR UTILIZE SERVICE CLAMP.
2) SERVICE AND OTHER TAPS SHALL NOT BE MADE CLOSER THAN 2 FEET TO A BELL, COUPLING, JOINT, FITTING, OR OTHER SERVICE.
DESERT WATER

1" SINGLE SERVICE INSTALLATION

STANDARD DRAWING W215

REVISION BY DATE

3/31/2020

RCE. 46700

GENERAL MANAGER, CHIEF ENGINEER

NO CURB AND GUTTER

CITY OF PALM SPRINGS - NO SIDEWALK

CITY OF PALM SPRINGS - SIDEWALK

CITY OF CATHEDRAL CITY - SIDEWALK OR NO SIDEWALK

EDGE OF IMPROVED OR UNIMPROVED SURFACE

36" (TYP.)

PROPERTY LINE

MAIN LINE

BACK OF CURB

BACK OF CURB

SW

SW

BACK OF SIDEWALK/BACK OF CURB (AS DETERMINED BY AGENCY)

FINISHED GROUND SURFACE

WELL COMPACTED EARTH

CUSTOMER SERVICE PIPING (BACKFLOW IF REQUIRED)

FURNISHED AND INSTALLED BY AGENCY

5' MINIMUM RIGHT OF WAY OR NON-EXCLUSIVE EASEMENT (AS NEEDED)

CHISEL 1 1/2" HIGH "W" ON CURB OVER SERVICE ALIGNMENT AT METER LOCATION.

3/4" GRAVEL, SEE NOTE 6

WATERMAIN

10 7 6 4 11

5

12 3 8

2 9

16 MIN. 750 MAX.

8" ± 1"

13" ± 1"

8" ± 1"

24" MIN.
<table>
<thead>
<tr>
<th>ITEM</th>
<th>QTY</th>
<th>DESCRIPTION</th>
<th>APPROVED MATERIALS LIST</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1</td>
<td>1&quot; SERVICE CONNECTION PER STANDARD DRAWING W214</td>
<td>SEE DWG W214</td>
</tr>
<tr>
<td>2</td>
<td>VARI</td>
<td>1&quot; TYPE &quot;K&quot; SOFT COPPER TUBING.</td>
<td>A-05</td>
</tr>
<tr>
<td>3</td>
<td>1</td>
<td>1&quot; ANGLE METER STOP.</td>
<td>B-05</td>
</tr>
<tr>
<td>4</td>
<td>1</td>
<td>METER (SIZE AND TYPE AS SPECIFIED). (BY AGENCY)</td>
<td>N/A</td>
</tr>
<tr>
<td>5</td>
<td>1</td>
<td>METER BOX WITH LID MARKED &quot;DWA&quot;.</td>
<td>E-01</td>
</tr>
<tr>
<td>6</td>
<td>1</td>
<td>1&quot; METER SWIVEL NUT X MALE IRON PIPE THREAD (BY AGENCY)</td>
<td>H-14</td>
</tr>
<tr>
<td>7</td>
<td>1</td>
<td>1&quot; CUSTOMER CONTROL BALL VALVE (BY AGENCY)</td>
<td>B-08</td>
</tr>
<tr>
<td>8</td>
<td>1</td>
<td>1&quot; X 2&quot; X CLOSE NIPPLE (BY AGENCY)</td>
<td>D-05</td>
</tr>
<tr>
<td>9</td>
<td>1</td>
<td>ONE INLINE COUPLING MAY BE PERMITTED WHEN APPROVED BY AGENCY (BY AGENCY)</td>
<td>H-12</td>
</tr>
<tr>
<td>10</td>
<td>1</td>
<td>1¾&quot; INLINE SINGLE CHECK VALVE (BY AGENCY)</td>
<td>G-04</td>
</tr>
<tr>
<td>11</td>
<td>3</td>
<td>BRASS BUSHING (SIZE VARIES). (BY AGENCY)</td>
<td>D-05</td>
</tr>
</tbody>
</table>

**NOTES**

1) COPPER SERVICE TUBING SHALL BE LAID STRAIGHT AND AT RIGHT ANGLES TO THE WATERMAIN.

2) METER BOX SHALL BE AT LEAST 5’ FROM EDGE OF DRIVEWAY (CURB DROP) OR FROM DRIVEWAY RADIUS AND AT LEAST 18" FROM ALL OTHER UTILITY CONDUCTS, BOXES, AND PADS.

3) PIPE THREADS SHALL BE CLEAN AND SHARP AND SEALED WITH AN APPROVED JOINT COMPOUND.

4) INSTALLATION OF APPURTENANCES FROM ANGLE METER STOP THROUGH INLINE SINGLE CHECK VALVE WILL BE BY AGENCY.

5) CUSTOMER CONTROL VALVE SHALL BE BEHIND BACKFLOW DEVICE IF BACKFLOW DEVICE IS REQUIRED.

6) ¾" GRAVEL SHALL BE INSTALLED WHEN METER BOX IS LOCATED WITHIN A TRAVEL WAY OR BEHIND ROLL CURB.
<table>
<thead>
<tr>
<th>ITEM</th>
<th>QTY</th>
<th>DESCRIPTION</th>
<th>APPROVED MATERIALS LIST</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1</td>
<td>2&quot; SERVICE CONNECTION PER STANDARD DRAWING W214.</td>
<td>SEE DWG W214</td>
</tr>
<tr>
<td>2</td>
<td>VARIES</td>
<td>2&quot; TYPE &quot;K&quot; SOFT COPPER TUBING.</td>
<td>A-05</td>
</tr>
<tr>
<td>3</td>
<td>1</td>
<td>2&quot; STANDARD WEIGHT BRONZE ELL.</td>
<td>H-09</td>
</tr>
<tr>
<td>4</td>
<td>1</td>
<td>2&quot; BRASS RISER, THREADED BOTH ENDS.</td>
<td>A-06</td>
</tr>
<tr>
<td>5</td>
<td>1</td>
<td>2&quot; ANGLE METER STOP WITH SLOTTED HOLES.</td>
<td>B-07</td>
</tr>
<tr>
<td>6</td>
<td>1</td>
<td>METER SIZE AND TYPE AS SPECIFIED (BY AGENCY).</td>
<td>N/A</td>
</tr>
<tr>
<td>7</td>
<td>1</td>
<td>METER BOX WITH LID MARKED &quot;DWA&quot;.</td>
<td>E-02</td>
</tr>
<tr>
<td>8</td>
<td>1</td>
<td>STANDARD WEIGHT BRASS PIPE, 18&quot; LONG (BY AGENCY).</td>
<td>A-06</td>
</tr>
<tr>
<td>9</td>
<td>1</td>
<td>CUSTOMER SERVICE VALVE (BY AGENCY).</td>
<td>B-09/B-10</td>
</tr>
<tr>
<td>10</td>
<td>1</td>
<td>PRECAST CONCRETE VALVE BOX (BY AGENCY).</td>
<td>E-06</td>
</tr>
<tr>
<td>11</td>
<td>1</td>
<td>ONE INLINE COUPLING MAY BE PERMITTED WHEN APPROVED BY AGENCY.</td>
<td>H-12</td>
</tr>
</tbody>
</table>

NOTES

1) COPPER SERVICE TUBING SHALL BE LAIRED STRAIGHT AND AT RIGHT ANGLES TO THE WATERMAIN.

2) METER BOX SHALL BE AT LEAST 5’ FROM EDGE OF DRIVEWAY (CURB DROP) OR FROM DRIVEWAY RADIUS AND AT LEAST 18’ FROM ALL OTHER UTILITY CONDUITS, BOXES AND PADS.

3) PIPE THREADS SHALL BE CLEAN AND SHARP AND SEALED WITH AN APPROVED JOINT COMPOUND.

4) INSTALLATION OF APPURtenANCES FROM ANGLE METER STOP THROUGH CUSTOMER SERVICE VALVE WILL BE BY AGENCY.

5) CUSTOMER CONTROL VALVE SHALL BE BEHIND BACKFLOW DEVICE IF BACKFLOW DEVICE IS REQUIRED.

6) ¾” GRAVEL SHALL BE INSTALLED WHEN METER BOX IS LOCATED WITHIN A TRAVEL WAY OR BEHIND ROLL CURB.
4" MULTIPLE SERVICE INSTALLATION

DESSERT WATER

STANDARD DRAWING
W217

3/31/2020
RCE. 46700

NOTES

1) THE MINIMUM NUMBER OF 1" SERVICES SHALL BE 5 AND THE MAXIMUM NUMBER SHALL BE 10.

2) THE MINIMUM NUMBER OF 2" SERVICES SHALL BE 2 AND THE MAXIMUM NUMBER SHALL BE 3.

3) CUSTOMER CONTROL VALVE SHALL BE BEHIND BACKFLOW DEVICE.

APPROVED

MARK I. KRAUSE
GENERAL MANAGER, CHIEF ENGINEER

REVISED BY DATE

WATERMAIN

UP OF GUTTER
BACK OF CURB

3'-0' MIN.
27"
3'-0' MIN.

27"
10 ± 1"

WELL
COMPACTED EARTH

SIDEWALK
BACKFLOW

CUSTOMER SERVICE PIPING
FURNISHED AND INSTALLED BY AGENCY

ITEM  |
-------|
1  | 1 |
2  | 1 |
3  | 1 |
4  | 4 |
5  | VARES 4" DIAMETER DUCTILE IRON PIPE AND FITTINGS WITH RESTRAINED JOINTS OR CM/C 1/0 GA. STEEL PIPE. |
6  | VARES DOUBLE STRAP (U.P.T.) BRONZE SERVICE CLAMP, TAPPED VERTICALLY. |
7  | VARES STANDARD WEIGHT BRASS PIPE, SIZE AS SPECIFIED. BRASS PIPE SHALL BE REAMED AFTER BEING CUT AND THREADED. PIPE THREADS SHALL BE CLEAN, SHARP, AND STEADY WITH AN APPROVED JOINT COMPOUND. |
8  | VARES ANGLE METER STOP, SIZE AS SPECIFIED. |
9  | VARES WATER METER, SIZE AND TYPE AS SPECIFIED. |
10 | VARES CUSTOMER SERVICE PIPE AND FITTINGS. |
11 | VARES CUSTOMER CONTROL VALVE, SIZE AS SPECIFIED. |
12 | VARES METER BOX WITH UD MARKED "DWA." (BY CONTRACTOR) |
13 | 1 |
14 | 1 |
15 | 1 |

DESCRIPTION

5 | SEE Dwg. W207
6 | SEE Dwg. W213
7 | SEE Dwg. W213
8 | B-06 OR B-07
9 | N/A
10 | N/A
11 | B-08, B-09, OR B-10
12 | E-01/E-02
13 | C-04
14 | D-03/D-01
15 | C-00

APPROVED MATERIALS LIST

3-31-2020

W-217
<table>
<thead>
<tr>
<th>ITEM</th>
<th>NO.</th>
<th>REQ'D.</th>
<th>DESCRIPTION</th>
<th>APPROVED MATERIALS LIST NO.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1</td>
<td></td>
<td>SERVICE CONNECTION PER STANDARD DRAWING W124 OR STANDARD DRAWING W125.</td>
<td>SEE DWG. W124 OR W125</td>
</tr>
<tr>
<td>2</td>
<td></td>
<td>VARES</td>
<td>TYPE &quot;K&quot; SOFT COPPER TUBING.</td>
<td>A-05</td>
</tr>
<tr>
<td>3</td>
<td>1</td>
<td></td>
<td>ANGLE METER STOP WITH DWA SEAL.</td>
<td>B-05</td>
</tr>
<tr>
<td>4</td>
<td>1</td>
<td></td>
<td>METER (SIZE AND TYPE AS SPECIFIED).</td>
<td>N/A</td>
</tr>
<tr>
<td>5</td>
<td>1</td>
<td></td>
<td>METER BOX WITH LID MARKED &quot;DWA&quot;.</td>
<td>E-01</td>
</tr>
<tr>
<td>6</td>
<td>1</td>
<td></td>
<td>STANDARD WEIGHT BRASS PIPE</td>
<td>A-06</td>
</tr>
<tr>
<td>7</td>
<td>1</td>
<td></td>
<td>BACKFLOW DEVICE WITH LOCKS</td>
<td>B-08</td>
</tr>
<tr>
<td>8</td>
<td>1</td>
<td></td>
<td>BRASS CROSS</td>
<td>E-06</td>
</tr>
<tr>
<td>9</td>
<td>1</td>
<td></td>
<td>CAPPED OUTLET FOR FUTURE FIRE SERVICE PIPING AND FUTURE SERVICE</td>
<td>D-05</td>
</tr>
<tr>
<td>10</td>
<td>1</td>
<td></td>
<td>CUSTOMER CONTROL VALVE AND PRECAST CONCRETE VALVE BOX</td>
<td>H-12</td>
</tr>
</tbody>
</table>

**NOTES**

1) COPPER SERVICE TUBING SHALL BE LAYED STRAIGHT AND AT RIGHT ANGLES TO THE WATERMAIN.
2) METER BOX SHALL BE AT LEAST 5' FROM EDGE OF DRIVEWAY (CURB DROP) OR FROM DRIVEWAY RADIUS.
3) PIPE THREADS SHALL BE CLEAN AND SHARP AND SEALED WITH AN APPROVED JOINT COMPOUND.
4) INSTALLATION OF APPURTENANCES FROM ANGLE METER STOP THROUGH CUSTOMER SERVICE VALVE WILL BE BY AGENCY.
5) CUSTOMER CONTROL VALVE SHALL BE BEHIND BACKFLOW DEVICE IF BACKFLOW DEVICE IS REQUIRED.

**DESERT WATER AGENCY**
**Palm Springs, California**

**MULTI-FAMILY SERVICE INSTALLATION WITH FIRE SERVICE**

**STANDARD DRAWING W128**
NOTES
1) COPPER SERVICE TUBING SHALL BE LAID STRAIGHT AND AT RIGHT ANGLES TO THE WATERMAIN.
2) METER BOX SHALL BE AT LEAST 5' FROM EDGE OF DRIVEWAY (CURB DROP) OR FROM DRIVEWAY RADIUS.
3) PIPE THREADS SHALL BE CLEAN AND SHARP AND SEALED WITH AN APPROVED JOINT COMPOUND.
4) INSTALLATION OF APPURTENANCES FROM ANGLE METER STOP THROUGH CUSTOMER SERVICE VALVE WILL BE BY AGENCY.
5) CUSTOMER CONTROL VALVE SHALL BE BEHIND BACKFLOW DEVICE IF BACKFLOW DEVICE IS REQUIRED.

DEsert WATER AGENCY
Palm Springs, California
Multi-Family Service Installation With Manifold Fire Service
Standard Drawing W129

Approved
DATE 10/29/07
RCE No. 58514

Operations Engineer

Revision
By Date
12" MIN. FROM CURB/SIDEWALK

DUCTILE IRON OR WELDED STEEL WATERMAIN

BACK OF CURB

BACK OF SIDEWALK

FLOW

ASSEMBLED, SHIPPED AND INSTALLED AS ONE UNIT (STATE APPROVED ASSEMBLY)

TO BE FURNISHED AND INSTALLED BY AGENCY

SECTION VIEW

12" MIN. FROM OUTERMOST EDGE

DUCTILE IRON OR WELDED STEEL WATERMAIN

FLOW

SIDEWALK

BACK OF CURB

PLAN VIEW

<table>
<thead>
<tr>
<th>ITEM</th>
<th>QTY</th>
<th>DESCRIPTION</th>
<th>APPROVED MATERIALS UST</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1</td>
<td>FLANGED DUCTILE IRON TEE ON DUCTILE IRON WATERMAIN OR FLANGED OUTLET ON WELDED STEEL WATERMAIN. SIZE AS SPECIFIED.</td>
<td>N/A</td>
</tr>
<tr>
<td>2</td>
<td>1</td>
<td>FLANGED GATE VALVE PER STANDARD DRAWING W207. SIZE AS SPECIFIED.</td>
<td>SEE DWG W207</td>
</tr>
<tr>
<td>3</td>
<td>1</td>
<td>STANDARD VALVE BOX PER STANDARD DRAWING W207.</td>
<td>SEE DWG W207</td>
</tr>
<tr>
<td>4</td>
<td>2</td>
<td>PUSH-ON X FLANGE ADAPTERS (DUCTILE IRON LATERAL ONLY) OR AWWA CLASS E FLANGE.</td>
<td>H-02/0-03</td>
</tr>
<tr>
<td>5</td>
<td>VARY</td>
<td>DUCTILE IRON PIPE AND FITTINGS WITH RESTRAINED JOINTS OR CMIL/C TDDA. STEEL PIPE, SIZE AS SPECIFIED BY DESERT WATER AGENCY. SIZE AS SPECIFIED (ABOVE GROUND PIPING SHALL NOT BE CEMENT MORTAR COATING AND SHALL BE FIELD PAINTED IN ACCORDANCE WITH APPROVED AGENCY PAINT SYSTEMS).</td>
<td>A-03/0-03/H-04 /A-01/0-01</td>
</tr>
<tr>
<td>6</td>
<td>1</td>
<td>DOUBLE CHECK VALVE AND DETECTOR CHECK WITH BYPASS METER ASSEMBLY. TYPE AND SIZE OF STATE APPROVED ASSEMBLY TO BE SPECIFIED BY DESERT WATER AGENCY.</td>
<td>C-03</td>
</tr>
</tbody>
</table>

DETECTORS CHECK (ABOVE GROUND)

DESSERT WATER

RCE. 46700

3/31/2020

GENERAL MANAGER,
CHIEF ENGINEER

STANDARD DRAWING
W218

REVISION BY DATE
NOTE

1. ALL FERROUS METALS SHALL BE COATED PER SECTION 108 PIPELINE SPECIFICATIONS, COATINGS OF FITTINGS. APPLY REINFORCED MORTAR COATING AFTER COMPLETION.

2. SLEEVES USED FOR UNCOATED STEEL PIPE.

3. EDGE OF COLLAR OR WRAPPER TO BE PLACED A MINIMUM OF 18" FROM EDGE OF ANY BELL COUPLING, VALVE FITTING OR OTHER OBSTRUCTION.

**DESERT WATER**

**WELDED STEEL PIPE REINFORCING DETAIL**

**STANDARD DRAWING**

**W219**

**SHEET 1 OF 1**
TYPICAL BUTT-STRAP WITH HANDHOLES
(STEEL PIPE)

LOCATION FOR 1 HANDHOLE,
FLANGE AND BLIND FLANGE PER
BASIC PIPELINE SPECIFICATIONS

HANDHOLE

6" DIAMETER STANDARD WEIGHT CEMENT
MORTAR LINED NIPPLE

LOCATION FOR TWO
HANDHOLES

FIELD APPLY LINING, SAME AS
BALANCE OF PIPELINE

"T" (THICKNESS)
"T"=\(\frac{3}{4}\)" PLATE FOR 6" DIAMETER—20" DIAMETER PIPE.
"T"=\(\frac{5}{8}\)" PLATE FOR 24" DIAMETER—36" DIAMETER PIPE

END VIEW

TRIM PIPE TO ACCOMMODATE
HANDHOLE

PIPE

HANDHOLE

1/4" 1/4"

5" 5"
10±1"

SIDE VIEW

I.D. OF BUTT-STRAP
O.D. OF PIPE CYLINDER

\(\frac{1}{2}\) GAP MAX.

FIELD APPLY COATING, SAME AS
BALANCE OF PIPELINE, TO ALL STEEL
EXCEPT FLANGES (REINFORCED WITH
2"x4" 13 GAGE WELDED WIRE MESH
FOR CEMENT MORTAR COATING)

NOTES
1) FOR PIPE 6"-18", LOCATE 1 HANDHOLE ON TOP OF PIPE.
   FOR PIPE 20"-36", LOCATE 2 HANDHOLES AT 30' ABOVE PIPE SPRING LINE.
2) INSTALL HANDHOLE(S) (1 OR 2 AS REQUIRED) REINFORCEMENT PER STANDARD DRAWING W219.
TYPICAL CUT-TO-FIT DETAILS
(STEEL PIPE)

HANDHOLES (1 OR
2 AS REQUIRED)
REINFORCED PER
STANDARD
DRAWING W136

TYPE I CUT-TO-FIT

12"

LAP WELD BELL

CUT-TO-FIT. HOLD
COATING AS REQUIRED FOR
CUT-TO-FIT, THEN FIELD
APPLY TO COMPLETE JOINT

TYPE I OR II CUT-TO-FIT
OPTIONAL TO THE CONTRACTOR
UNLESS OTHERWISE SPECIFIED

SLIT BUTT-STRAP
WITH HANDHOLES
(1 OR 2 AS
REQUIRED)

TYPE II CUT-TO-FIT

\frac{1}{4}" GAP

\frac{1}{4}"

CUT-TO-FIT ON EITHER PIPE OR
A SPECIFIED. HOLD COATING AS
REQUIRED FOR CUT-TO-FIT, THEN
FIELD APPLY TO COMPLETE JOINT.

\frac{1}{4}" GAP

\frac{1}{4}"

TYPE IV CUT-TO-FIT
TYPICAL STEEL PIPE JOINT REPAIR DETAIL
(FIELD CONSTRUCTION)

HANDHOLES (1 OR 2 AS REQUIRED) REINFORCED PER STANDARD DRAWING W136

12"

REMOVE BLOWN OUT GASKET WHERE POSSIBLE, INSTALL FILLER ROD AND WELD WATERTIGHT

EXISTING STEEL WATER MAIN

TYPICAL DUCTILE IRON JOINT REPAIR DETAIL
(FIELD CONSTRUCTION)

BELL JOINT LEAK CLAMP

EXISTING DUCTILE IRON WATER MAIN

DESERT WATER
STANDARD DRAWING
W220
CUT-TO-FIT & JOINT REPAIR DETAIL

REVISION BY DATE

3/31/2020
RCE. 46700
GENERAL MANAGER, CHIEF ENGINEER
THRUtb PROTECTION FOR WELDED STEEL PIPE NOTES

1) WELDED STEEL PIPE WITH DIAMETERS 16" AND LESS SHALL HAVE TACK WELDED JOINTS WITHIN LIMITS SHOWN IN TABLES ON SHEET 1 OF THIS STANDARD DRAWING.

2) WELDED STEEL PIPE WITH DIAMETERS 18" AND GREATER SHALL HAVE FULLY WELDED JOINTS WITHIN LIMITS SHOWN IN TABLES ON SHEET 1 OF THIS STANDARD DRAWING.

RESTRAINED JOINTS FOR DUCTILE IRON PIPE NOTES

1) RESTRARED JOINTS FOR DUCTILE IRON PIPE SHALL BE INSTALLED IN THE FOLLOWING SITUATIONS:
   - ON ALL FITTINGS PER THE LIMITS SHOWN IN TABLES ON SHEET 1 OF THIS STANDARD DRAWING.
   - IN ALL NON-PAVED AREAS.
   - ON ALL FIRE HYDRANT AND/OR BLOWOFF ASSEMBLIES.
   - ON ANY PIPE LOCATED UNDERNEATH DECORATIVE PAVING AND/OR CONCRETE.

2) PIPE LENGTHS AS SHOWN IN THE TABLES ON SHEET 1 OF THIS STANDARD DRAWING REPRESENT THE MINIMUM PIPE LENGTH REQUIRED. IF PIPE LENGTH INDICATED FALLS IN THE MIDDLE OF A STICK OF PIPE, RESTRARED JOINTS SHALL EXTEND TO THE END OF SAID STICK OF PIPE.

3) RESTRARED JOINTS SHALL BE FIELD LOK UNLESS OTHERWISE APPROVED BY DESERT WATER AGENCY.

4) FIRE HYDRANTS SHALL UTILIZE BOTH A TEE THRUST BLOCK AND RESTRARED JOINTS AT A DISTANCE OF 20 FEET ON EITHER SIDE OF TEE.

5) WITH THE EXCEPTION OF FIRE HYDRANTS, THRUST BLOCKS DO NOT NEED TO BE INSTALLED ON RESTRARED JOINT DUCTILE IRON PIPE UNLESS OTHERWISE SPECIFIED BY DESERT WATER AGENCY.

APPROVED 3/31/2020
Mark A. Kranz
GENERAL MANAGER, CHIEF ENGINEER

DESSERT WATER

THRUtb PROTECTION AND JOINT RESTRAINT

STANDARD DRAWING

W221

SHEET 2 OF 2
CRADLED PIPE SUPPORT

OUTSIDE DIAMETER OF FLANGE OR PIPE (VARIABLE, TYP.)

1/8" STEEL PIPE SECTION, 3" WIDE ROLLED TO MATCH FLANGE OR PIPE O.D. (TYP.)

1 1/2" FINE THREADED ROD (TYP.)

1 1/2" STANDARD WEIGHT BLACK PIPE, PLACE PLUMB (TYP.)

8"x8"x3/8" STEEL PLATE (TYP.)

"A"

1/2"x3" ANCHOR BOLT, 4 TOTAL (TYP.)

CLASS A (4,000 PSI MIN.) CONCRETE FOOTING (TYP.)

SECTION "A"

NOTES

1) PAINT WITH PRIME COAT AND FINISH COAT AFTER FABRICATION IN ACCORDANCE WITH APPROVED AGENCY PAINT SYSTEMS. FINISH COAT SHALL BE SAME AS SUPPORTED PIPE, UNLESS OTHERWISE DIRECTED BY AGENCY.

2) USE TO BE PRE APPROVED BY DWA.

3) CRADLE OR STRAP TO BE DETERMINED BY DWA.

APPROVED 3/1/2020

GENERAL MANAGER, CHIEF ENGINEER

DEsert WATER STANDARD DRAWING

CRADLED OR STRAPPED PIPE SUPPORT

RCE. 46700 W222

SHEET 1 OF 1
<table>
<thead>
<tr>
<th>ITEM</th>
<th>NUMBER REQUIRED</th>
<th>DESCRIPTION</th>
<th>APPROVED MATERIAL LIST NO.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1</td>
<td>1&quot; SINGLE SERVICE INSTALLATION PER STD DWG. W215 (W/OUT METER)</td>
<td>SEE DWG W215</td>
</tr>
<tr>
<td>2</td>
<td>1</td>
<td>1&quot; METER ADAPTER</td>
<td>N/A</td>
</tr>
<tr>
<td>3</td>
<td>1</td>
<td>1&quot;X1/4&quot; BRASS BUSHING REDUCER</td>
<td>N/A</td>
</tr>
<tr>
<td>4</td>
<td>2</td>
<td>1/2&quot; BRASS COMPRESSION MALE CONNECTOR</td>
<td>J-1</td>
</tr>
<tr>
<td>5</td>
<td>Varies</td>
<td>1/2&quot; COPPER TUBING</td>
<td>J-6</td>
</tr>
<tr>
<td>6</td>
<td>Varies</td>
<td>1&quot; PVC CONDUIT (ENDS SHALL BE SEALED W/SILICON)</td>
<td>N/A</td>
</tr>
<tr>
<td>7</td>
<td>3</td>
<td>1/4&quot;X3&quot; CONCRETE WEDGE ANCHOR BOLTS (3 EA. AT 120' APART)</td>
<td>N/A</td>
</tr>
<tr>
<td>8</td>
<td></td>
<td>CLASS II BASE</td>
<td>N/A</td>
</tr>
<tr>
<td>9</td>
<td>1</td>
<td>WATER QUALITY SAMPLE STATION COVER</td>
<td>J-2</td>
</tr>
<tr>
<td>10</td>
<td>1</td>
<td>DWA DECAL (TO BE APPLIED BY DWA FORCES)</td>
<td>N/A</td>
</tr>
<tr>
<td>11</td>
<td>Varies</td>
<td>1/2&quot; COPPER TUBING</td>
<td>N/A</td>
</tr>
<tr>
<td>12</td>
<td>1</td>
<td>1/2&quot; BRASS COMPRESSION MALE CONNECTOR</td>
<td>N/A</td>
</tr>
<tr>
<td>13</td>
<td>1</td>
<td>1/2&quot; BRASS BALL VALVE</td>
<td>N/A</td>
</tr>
<tr>
<td>14</td>
<td>1</td>
<td>1/2&quot;X2&quot; PRESSURE TREATED WOOD SPACER</td>
<td>N/A</td>
</tr>
<tr>
<td>15</td>
<td>1</td>
<td>1/2&quot;X1/2&quot; FIP BRASS TEE</td>
<td>N/A</td>
</tr>
<tr>
<td>16</td>
<td>1</td>
<td>1/2&quot;X2&quot; STAINLESS STEEL U HOOK</td>
<td>N/A</td>
</tr>
<tr>
<td>17</td>
<td>1</td>
<td>2&quot; BRASS 90° STREET ELL</td>
<td>N/A</td>
</tr>
<tr>
<td>18</td>
<td>Varies</td>
<td>1/2&quot; BRASS 1/4&quot; TURN NO-KINK HOSE BIB</td>
<td>N/A</td>
</tr>
</tbody>
</table>

**DESERT WATER**

**WATER QUALITY SAMPLE STATION**

**STANDARD DRAWING**

**W223**

**DATE** 3/3/2020

**GENERAL MANAGER, CHIEF ENGINEER**

**RCE. 46700**

**SHEET 1 OF 1**
NOTES

1) IF EXISTING UTILITIES ARE LOCATED BEHIND CURB AND GUTTER, CONTRACTOR SHALL PROTECT SAID FACILITIES IN PLACE.

2) ADDITIONAL FITTINGS, MATCHING EXISTING V.C.P. SEWER LATERAL DIAMETER, MAY BE REQUIRED, AS DIRECTED BY AGENCY. ALL FITTINGS TO BE APPROVED BY AGENCY PRIOR TO INSTALLATION.